

**II. REMARKS**

Claims 1-27 are currently pending in this application and stand rejected. All references to Applicant's specification (the "Specification") refer to applicants published application US 2004/0163419, by paragraph number.

**III. THE INFORMATION DISCLOSURE STATEMENT**

Applicants will submit an Information Disclosure Statement complying with 37 C.F.R. § 1.98(a)(2) shortly.

**IV. THE 35 U.S.C § 112 REJECTIONS**

Claims 1-27 stand rejected under 35 U.S.C. § 112, second paragraph, on the grounds that they are indefinite. These rejections should be withdrawn in view of the following amendments.

Claims 1, 3-4, 11, 13-14 and 23-24 are amended to recite "within a range" in connection with the numerical values. Claim 15 is amended to replace "a" with --the--.

**V. THE 35 § 102 AND § 103 REJECTIONS**

Claims 1-3, 5, 11-13 and 15 stand rejected under 35 U.S.C § 102 over U.S. Patent No. 5,732,170 (issued March 24, 1998) to S. Okude ("Okude"). The rejections should be withdrawn because Okude does not teach each and every claim limitation.

For a reference to defeat a claim's novelty under 35 U.S.C. § 102 (*i.e.*, anticipate the claim), it must disclose each and every element of the claim. Advance Display Sys. v. Kent State Univ., 212 F.3d 1272 (Fed. Cir. 2000).

Applicant teaches and claims a method for expanding the mode-field diameter of an optical fiber by heating an end of the optical fiber. Applicant's invention is particularly advantageous to match mode fields of dispersion-compensating fibers to larger-core optical fibers prior to splicing. Previously, the most common method for accomplishing this was fusion splicing wherein the mismatched fibers were abutted end to end and high heat applied to effect a fusion. This resulted in mode field distortions and kinking. SPECIFICATION at ¶ 6.

Okude is directed toward heat-induced fusion splicing and does not say one single word about heating the end of a fiber as recited by Applicant's claims 1-3, 5, 11-13 and 15. See e.g., OKUDE, col. 14, lines 50-60; col. 18, lines 17-43.

The Examiner has cited column 11, line 54 et seq. as teaching heating "the end of the optical fiber". In fact, this portion of Okude does not provide such a teaching. Lines 54 et seq.

teach heating an internal portion of an optical fiber that has already been spliced. For example, lines 58-60 read "around the area of connection between the single mode optical and the multimode optical fiber". This clearly means that a connection (or splice) has be formed between the fibers and heat is being applied to the interior spliced region; not to the end of the fiber as claimed by Applicant.

Accordingly, because Okude does not teach or suggest Applicant's claim limitation of "heating an end of the optical fiber", the rejection should be withdrawn.

Claims 4, 14, 16 and 6 stand rejected under 35 U.S.C § 103 over Okude in view of U.S. Patent No. 6,336,749 (issued Jan. 8, 2002) to E. O'Toole et al. ("O'Toole"). The rejections should be withdrawn because this reference combination does not teach to one of ordinary skill in the art that the claimed invention could be carried out with a reasonable likelihood of success and does not teach or suggest all of Applicant's claim limitations.

To support obviousness, a reference must suggest to one of ordinary skill in the art that the claimed invention could be carried out with a reasonable likelihood of success. Both the suggestion and the expectation of success must be founded in the prior art. In re Dow Chem. Co., 837 F.2d 469, 472 (Fed. Cir. 1988). It is well settled that to establish a *prima facie* case of obviousness the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143.03; In re Royka, 180 U.S.P.Q. 580 (C.C.P.A. 1974); Ex Parte Masato Ono, 2000 WL 33520305, \*3; Atlas Powder Co. v. E.I. DuPont De Nemours & Co., 750 F.2d 1569, 1575 (Fed. Cir. 1984).

The Examiner cites O'Toole merely for the teaching of different sized fibers. But as with Okude, O'Toole contains no teaching or suggestion of heating the end of an optical fiber to expand the mode field. In sum, because the combination of Okude and O'Toole does not teach or suggest Applicant's claim limitation of "heating an end of the optical fiber", the rejection should be withdrawn.

Claims 7-10, 17-23 and 25-27 stand rejected under 35 U.S.C § 103 over Okude alone or over Okude in view of U.S. Patent No. 5,372,623 (issued Dec. 13, 1994) to S. Ueda et al. ("Ueda").

The rejections should be withdrawn because neither Okude nor Ueda teach or suggest to one of ordinary skill expanding the mode field diameter of an optical fiber by heating at a temperature of about 500 to about 2000 by applying heat generated from an organic liquid.

Applicant has discovered that an organic-liquid-fueled flame provides a near ideal temperature profile for diffusing the dopants in a dispersion compensating fiber. It causes the dopants to diffuse gradually along the length of fiber in the flame, resulting in a relatively long, gradual expansion of the mode-field diameter over a length of fiber. The gradual mode-field diameter expansion minimizes the splice loss after the heat-treated fiber is spliced. The organic liquid does not require additives and burns clean. The references cited do not teach or suggest Applicant's claimed discovery and invention.

The Examiner has stated that Applicant has not stated any unexpected results. OFFICE ACTION at p. 4. In fact, Applicant does not have to provide unexpected results because the Examiner has not made out a *prima facie* case of obviousness. *In re Wagner*, 371 F.2d 877, 844 (CCPA 1967). What is more, however, is that Applicant's do present unexpected results in Example 1. Specification at Example 1.

In view of the above discussion, the § 103 rejection of claims 7-10, 17-23 and 25-27 over Okude or Okude in combination with Ueda should be withdrawn.

## VI. CONCLUSION

In view of the above amendments and remarks, Applicant has overcome all rejections, and reconsideration is requested. No fee is required for entry of this Reply. If any fee is due, however, please charge the required fee to deposit account number 501358.

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